Jinning Li

Ph.D. Candidate, Computer Science

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Education

Shanghai Jiao Tong University Sep 2015 - Jun 2019

Bachelor of Engineering (Zhiyuan Honors Degree), Computer Science, ACM Honors Class

- Advisors: Prof. Yong Yu and Prof. Xiaofeng Gao
- Research Interests: Machine Learning, Data Mining, Computer Vision, and Computational Sustainability

Research Experience

Machine Learning Group at **Purdue University**

Visiting Undergraduate Research Intern Sep 2018 - Dec 2018

- Advisor: Prof. Yexiang Xue
- **Transform Scribbles to Oil Paintings with Multi-Task GANs**.
  We introduce *Multi-Task Learning* to the settings of *Generative Adversarial Networks* to address the sparsity problem of scribbles. (CVPR 2019 Submission)
- **Hierarchical Learning of Differently Correlated Components**.
  Due to bias-variance tradeoff, performance of neural network on differently correlated components, such as the terms in high-dimensional polynomial, may varies. We studied this phenomenon and proposed learning rate adjusting algorithms to solve this problem.

Counterfactual Machine Learning Group at **Cornell University**

Visiting Undergraduate Research Intern July 2018 - Aug 2018

- Advisor: Prof. Thorsten Joachims
- **Improve Supervised Learning on Logged Bandit Feedbacks**.
  Straightforward supervised learning often leads to large bias. We improved supervised methods by applying *inverse propensity weighting* to balance the bias-variance tradeoff.
- **A Hybrid Method of Counterfactual Risk Minimization and Supervised Learning**.
  Proposed a novel hybrid method which not only learns the feedback of observed action, but also minimizes counterfactual risk for all the candidates in a batch.
- **Ad Placement Challenge on Criteo Dataset**.
  I implemented proposed methods to learn an Ad placement policy. Our hybrid method achieved **Rank 1** in *NIPS '17 Workshop: Criteo Ad Placement Challenge* (post-challenge).

Data Mining Group of Advanced Network Lab at **Shanghai Jiao Tong University**

Research Assistant July 2017 - present

- Advisor: Prof. Xiaofeng Gao
- **Cross-Platform Event Popularity Analysis**.
  Developed a scheme to quantify and analyze the cross-platform popularity between two social media. We proposed *TF-SW* for event popularity quantification and ωDTW-*CD* for *Event Popularity Time Series* alignment. (DEXA 2018 Paper)
- **Sentiment-Aware Topic Popularity Prediction on Short Text based Social Media**.
  Proposed a novel *Branch-Net* to estimate public sentiment utilizing texts and emojis in tweets. *Time Series Analysis* between popularity and sentiment was applied to improve the performance of prediction. (SDM 2019 Submission)

Publication

Scribble-to-Painting Transformation with Multi-task Generative Adversarial Nets
Jinning Li, Yexiang Xue
Submission to *Conference on Computer Vision and Pattern Recognition* (CVPR) 2019

Sentiment-Aware Topic Popularity Prediction on Short Text based Social Media
Jinning Li, Qiang Zhang, Jiayi Xu, Xiaofeng Gao, Guihai Chen
Submission to *SIAM International Conference on Data Mining* (SDM) 2019

DancingLines: An Analytical Scheme to Depict Cross-Platform Event Popularity
Tianxiang Gao, Weiming Bao, **Jinning Li**, Xiaofeng Gao, Boyuan Kong, Yan Tang, Guihai Chen, Xuan Li
In *International Conference on Database and Expert Systems Applications* (DEXA) 2018

Topic Detection and Dissemination Trend Analysis on Social Network
Jiadong Chen, Tianxiang Gao, Xiaofeng Gao, Peng He, **Jinning Li**, Guihai Chen
Submission to *SIAM International Conference on Data Mining* (SDM) 2019

Highlighted Projects

DeepWave: Learning to Simulate Water Wave in Real-time
CS230 *Virtual Reality and Interactive 3D Graphics*, **96/100** Jun 2018
- Developed a method to learn the physical law of water wave propagation and simulate the scene in real-time utilizing deep learning and wave packet theory.

Convolutional BiMPM for Natural Language Inference
CS229 *Natural Language Processing*, **93/100** May 2018
- Proposed a novel convolutional bilateral multi-perspective matching model for natural language inference task on SNLI dataset, improving the accuracy to 86.7%.

LineArtist: A Multi-style Sketch to Painting Synthesis Scheme
CS348 *Computer Vision*, **92/100** Dec 2017
- Developd a scheme to synthesize beautiful paintings with only some semantic sketches, including three procedures: *Sketch Image Extraction*, *Details Synthesis*, and *Style Transfer*.

Compiler *Maple*
MS208 *Compiler Design and Implementation*, **Outperforms GCC -O1** May 2017
- Designed and implemented a compiler from *Lexical Analysis* to *Register Allocation* with graph-coloring optimization, translating Mx* (a hybrid of C and Java) to x86 Assembly.

Honors and Awards

Academic Excellence Scholarship **(Class A)** of SJTU. **(Top 5%)** 2017
Interdisciplinary Contest In Modeling **(Meritorious Winner)**. **(Top 7%)** 2017
Zhiyuan Honorary Scholarship **(Zhiyuan College exclusive)** 2017, 2016
Certificate Authority Cup International MCM **(Outstanding Winner) (Top 1%)** 2015
Dongrun-Yau High School Science Award **(First Prize)**. **(Top 1%)** 2015

Teaching Experience

MS100: Operating System Spring 2018
Teaching Assistant

CS122: Programming Fall 2016
Teaching Assistant

Programming Proficiencies

C/C++, Java, Python (TensorFlow, PyTorch, MXNet)
Javascript (D3.js), Matlab, LaTeX, Verilog HDL

Interests Activities

Finance (Minor), Biology, Art, and Physics
Member of Ivy Symphony Orchestra, SJTU